

providing a plurality of reliefs having a bottom surface in a main polishing surface of the pad; and

C1 measuring a distance from the main polishing surface to the bottom surface of each of the plurality of reliefs, wherein the plurality of reliefs are disposed in a predetermined pattern such that the wear of the pad is determinable as a function of pad radius.

2X The method of claim 1 comprising determining total pad wear based on the measured distances, wherein the measuring a distance comprises laser measurements.

3X (Amended) A method for measuring wear of the thickness of a chemical mechanical polishing pad, comprising:

providing a plurality of reliefs having a bottom surface in a main polishing surface of the pad, the reliefs being disposed in a predetermined pattern;

measuring a distance by laser from the main polishing surface to the bottom surface of each of the plurality of reliefs, wherein the pad has a radius; and

determining wear of the pad as a function of the pad radius, based on the predetermined pattern and the measured distances, to generate a pad wear profile.

CH 4X (Amended) A method for measuring wear of the thickness of a chemical mechanical polishing pad, comprising:

providing a plurality of reliefs having a bottom surface in a main polishing surface of the pad, the plurality of reliefs being disposed in a predetermined pattern;

measuring a distance by laser from the main polishing surface to the bottom surface of each of the plurality of reliefs; and

determining a wear rate of a first portion of the main polishing surface of the pad based on the predetermined pattern and the measured distances.

5X The method of claim 3, wherein the pad wear is responsive to a process parameter, and further comprising altering the process parameter based on the pad wear profile.

6 ~~10~~. The method of claim ~~8~~, comprising altering the process parameter based on the pad wear profile such that the pad wear is approximately equal at each of the reliefs.

7 ~~11~~. The method of claim ~~8~~, comprising polishing an article using a second portion of the pad separate from the first portion when the wear rate of the first portion is significantly greater than a predetermined value.

8 ~~12~~. The method of claim ~~8~~, wherein the first portion of the pad is used to polish an article at a predetermined polishing rate, and wherein the polishing rate is responsive to a process parameter and the wear rate, the method comprising altering the process parameter based on the wear rate such that the polishing rate is maintained.

9 ~~13~~. The method of claim ~~8~~, wherein the process parameter comprises conditioning of the pad.

10 ~~21~~. (Amended) An apparatus for chemical mechanical polishing a substrate comprising,

C3 a chemical mechanical polishing pad having a plurality of reliefs having a bottom surface in a main polishing surface for determining wear of the pad, wherein the reliefs comprise through-holes in the pad or extend partially through a thickness of the pad; and

means for measuring a distance from the main polishing surface to the bottom surface of each of the plurality of reliefs.

11 ~~22~~. The apparatus of claim ~~21~~, wherein the means for measuring a distance comprise a laser probe.

12 ~~23~~. (Amended) An apparatus for chemical mechanical polishing a substrate comprising,

C4 a laser probe; and